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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,139	03/06/2007	Shinichiro Yamada	09792909-6492	2702

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EXAMINER	
LEE, DORIS L	
ART UNIT	PAPER NUMBER
1796	

MAIL DATE	DELIVERY MODE
01/08/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/596,139	YAMADA ET AL.	
	Examiner	Art Unit	
	Doris L. Lee	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 November 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7 and 10-23* is/are pending in the application.

4a) Of the above claim(s) *13-23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7 and 10-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The new grounds of rejection set forth below are necessitated by applicant's amendment filed on November 3, 2009. In particular, claim 1 which has been amended to limit the amount of the nitrogen oxide and hydroxide compounds This combination of limitations was not present in the claims at the time of the preceding office action. Thus, the following action is properly made final.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior office action.

Claim Rejections - 35 USC § 103

3. **Claims 1-7 and 10-12** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yamada et al (JP 2003-192925, see English language equivalent 2005/0143502)** in view of **Yoshida (US 2002/0151631)**.

Regarding claim 1, Yamada teaches a resin composition ([0002]) comprising:

- at least one biodegradable polysaccharide ([0030])
- a flame retardant additive containing a hydroxide ([0043]) which is used in an amount from 5 to 50% by weight ([0048])
- and a hydrolysis suppressing agent suppressing the hydrolysis of said at least one polysaccharide ([0049]).

Yamada teaches that a nitrogen flame retardant compound can be used in the composition; however, Yamada fails to teach the addition of a nitrogen oxide compound.

Yoshida teaches a resin composition ([0008]) which has a metal hydroxide component which may be aluminum hydroxide, magnesium hydroxide, or calcium hydroxide ([0018]) which incorporates a nitrogen oxide composition ([0009]). Yoshida further teaches that the nitrogen compound is used in an amount from 0.1 to 50 weight parts and the hydroxyl-group-containing compound is used in an amount from 10 to 100 parts by weight ([0033]).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the amount of nitrogen oxide compounds of Yoshida into the composition of Yamada. One would have been motivated to in order to have excellent flame retardancy at a low amount of addition to the resin without degrading various properties of such resin and a low production of combustion residue when such resin of so is combusted for disposal (Yoshida, [0007]). They are combinable because they are both concerned with the same field of endeavor, namely resins with metal hydroxides as flame retardants. Absent objective evidence to the contrary and based upon the teachings of the prior art, there would have been a reasonable expectation of success.

Regarding claim 2, Yamada teaches that the polysaccharide is cellulose, starch, chitosan, dextran and derivatives thereof and copolymers comprising one of them ([0032]).

Regarding claim 3, Yamada teaches that the said hydroxide includes at least one metal hydroxide ([0038]).

Regarding claim 4, Yamada teaches that the metal hydroxide is aluminum hydroxide, magnesium hydroxide or calcium hydroxide ([0038]).

Regarding claim 5, Yamada teaches that the hydroxide has a purity of not less than 99.5% ([0045]).

Regarding claim 6, Yamada teaches that said hydroxide is in the form of particles with a BET specific surface area not higher than 5.0 m2/g ([0047]).

Regarding claim 7, Yamada teaches that said hydroxide has an average particle size not higher than 100 microns ([0046]).

Regarding claim 10, modified Yamada teaches that the nitrogen oxide is a non-metallic nitric acid compound and/or a non-metallic nitrous acid compound (Yoshida, [0012]).

Regarding claim 11, modified Yamada teaches that the average particle size of said nitrogen compound is not larger that 100 microns (Yoshida, [0011]).

Regarding claim 12, Yamada teaches that the hydrolysis suppressing agent is a carbodiimide compound, and isocyanate compound or an oxazoline compound ([0050]).

Response to Arguments

4. Due to the applicant's amendments filed on November 2, 2009, the objection against claim 2 has been withdrawn.

5. Applicant's arguments filed November 3, 2009 have been fully considered but they are not persuasive for the reasons set forth below.

6. **Applicant's argument:** Neither Yamada nor Yoshida teach a resin that includes both a hydroxide and a nitrogen compound.

Examiner's response: *It is noted that Yoshida teaches the combination of flame retardants.*

7. **Applicant's argument:** Neither of the cited references teaches nor even fairly suggest the relationship between the amount of the nitrogen oxide and the amount of hydroxide.

Examiner's response: *It is noted that Yoshida teaches the combination of the two types of the claimed flame retardants in the amount used by the presently claimed invention. And that Yamada teaches the hydroxide containing compound in the amount claimed by the present invention. Given the motivation set forth above, it would have been obvious to a person of ordinary skill in the art to combine the teachings of the two references to arrive at the presently claimed invention.*

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Doris L. Lee whose telephone number is (571)270-3872. The examiner can normally be reached on Monday - Thursday 7:30 am to 5 pm and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Doris L Lee/
Examiner, Art Unit 1796

/Vasu Jagannathan/
Supervisory Patent Examiner, Art Unit 1796